Patent Claims

1. A method for producing an optical component of quartz glass by elongating a coaxial arrangement of a core rod and a hollow cylinder of a predetermined length in that the coaxial arrangement is supplied in vertical orientation to a heating zone and is softened therein zonewise, starting with its lower end, and the component is drawn off downwards from the softened region, the hollow cylinder having an inner bore which in the region of its lower end is provided with a constriction on which the core rod is supported, characterized in that the constriction of the inner bore (5) is produced in a first upper hollow cylinder (1) in that,

   a) the first upper hollow cylinder (1) is fused at the front side with a second lower hollow cylinder (6) with formation of an axial cylinder composite (3),

   b) a core rod (4) is introduced into the lower hollow cylinder (6), and the axial cylinder composite (3) is supplied to the heating zone (49), starting with its lower end, and is softened therein zonewise and elongated with formation of the optical component (8),

   c) a drawing bulb (9) being formed progressing in the cylinder composite (3) to the first upper hollow cylinder (6), within which bulb the inner bore (5) is collapsed at least in part, thereby producing the constriction of the inner bore (5),

   d) the first hollow cylinder (1) is separated at a separation plane in the area of the constriction from the withdrawn optical component (8) and

   e) is subsequently elongated for producing an optical component together with a core rod in a coaxial arrangement.

2. The method according to claim 1, characterized in that the first hollow cylinder (1) is subsequently used as the second hollow cylinder (6).

3. The method according to claim 1, characterized in that the upper hollow cylinder (1) is used in the elongation process for holding the lower hollow cylinder (6).

4. The method according to any one of the preceding claims, characterized in that the constriction in the area of the separation plane (10) comprises an axially continuous opening.

5. The method according to any one of the preceding claims, characterized in that the elongation process comprises a drawing phase and a drawing end phase, and that during the drawing phase a negative pressure is produced in the inner bore (5) in comparison with the externally applied pressure.

6. The method according to claim 5, characterized in that the pressure in the inner bore (5) is increased in the drawing end phase.

7. The method according to claim 6, characterized in that the pressure in the inner bore is increased in the drawing end phase to a value in the range of the ambient pressure +/- 50 mbar.

8. The method according to any one of the preceding claims, characterized in that a plunger (34) which has a smaller outer diameter than the core rod (4) is used in the inner bore (5, 36) above the core rod (4).

9. The method according to any one of the preceding claims, characterized in that the upper end of the core rod (4) extends into the inner bore (5) of the upper hollow cylinder (1).

10. The method according to claim 9, characterized in that the upper end of the core rod (4) extends up and into the region of half the length of the upper hollow cylinder (1).

11. The method according to any one of the preceding claims, characterized in that the inner diameter and/or the outer diameter of the upper hollow cylinder (1) and/or of the lower hollow cylinder (6) are beveled.

12. The method according to any one of the preceding claims, characterized in that the inner diameters of upper hollow cylinder (1) and lower hollow cylinder (6) differ by not more than +/- 2 mm from each other, and the outer diameters of upper hollow cylinder (1) and lower hollow cylinder (6) differ by not more than +/- 3 mm from each other.

13. The method according to any one of the preceding claims, characterized in that the inner bore (5) of a first upper hollow cylinder (1) is mechanically machined to a final dimension.